Docket No.: 491712000100
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of:
Eugene S. SMOTKIN

Application No.: 09/891,200

Filed: June 26, 2001

For: ELECTROLYTE COMPONENTS FOR USE IN FUEL CELLS (AS AMENDED)

Confirmation No.: 9382

Art Unit: 1795

Examiner: Raymond Alejandro

REQUEST FOR RECONSIDERATION

MS Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

A decision was rendered in the present case by the Board on 22 January 2010 setting a date for filing a Request for Reconsideration of 22 February 2010. Appellant greatly appreciates the decisions in his favor refusing to sustain the rejections of claims 84-91 as indefinite, claims 75-82 and 84-91 as unpatentable over Smotkin in view of four secondary references and of claims 75-82 and 84-91 as unpatentable over WO '777 in view of the same four secondary documents.

Appellant, however, wishes to request reconsideration of maintenance of the rejection of claims 75-76, 80-81, 84-85 and 89-90 as anticipated and obvious over Baucke (WO98/21777).

The decision is grounded in the view that Figure 2 of Baucke reproduced on page 15 of the decision, anticipates because the electrolyte layer, composed of Ta_2O_5 and the nickel layer 13 can

represent the proton-conducting membrane consisting essentially of a single metal or metal hydride support coated with an electronically-insulating proton-conducting coating (*i.e.*, an electrolyte). According to the decision, the reason this is so is that layers 11 and 14 can be interpreted as the electrodes, since layer 14 composed of palladium is taught by Baucke to be a material that can be employed as an electrode. (The citations to Baucke are evidently to the corresponding U.S. patent.) Therefore, according to the reasoning of the Board, the public would be deprived of the use of this prior art disclosure because even though the claimed membrane consists essentially of a single support coated with electrolyte, when this is placed into its intended purpose in a fuel cell, and embraced by two electrolytes 11 and 14 in the figure, the claim would be infringed.

As both the Examiner and the Board recognize, Baucke itself characterizes layer 13 as an electrode, not as the support for a coating as characterized in the claim, so any anticipation is inherent not explicit.

It appears essential to the finding of inherent anticipation that the arrangement disclosed by Baucke is such that the palladium layer 14 can be construed as itself being an electrode so that the nickel layer 13 can be construed as the claimed support.

This cannot be the case. A review of the description of Figure 2 in Baucke reveals that the layer 14 in Figure 2 cannot serve this purpose itself.

The description in column 7, at lines 6-7 of Baucke, describes the palladium layer as having a thickness of several atom layers.

According to the attached information, retrieved from the internet, the atomic radius of palladium is approximately 170 pm*. This would make the atomic diameter 340 picometers. As

* Exhibit A attached.

shown in the calculation below, even a layer of 10 palladium atoms (clearly more than several) would be only 3.4 nanometers.)

$$340 \times 10^{-12} \text{ meters } \times 10 = 3400 \times 10^{-12} \text{ or } 3.4 \times 10^{-9} \text{ meters}$$

Baucke notes in column 4, lines 24-34, that although electrodes fuel cells employed in industry generally have thicknesses between 10 and 15 μm, useful thicknesses may range from 0.1 μm to 50 μm exclusive of overcoating layers. Preferable thicknesses are from 0.5 μm to 15 μm. Thus, the very lowest thickness taught by Baucke is 100 nm. Since several layers of palladium atoms, even assuming "several" means as many as 10, the palladium layer 14 as taught by Baucke cannot serve as an electrode. Thus, in appellant's view, it is improper to interpret 11 and 14 in Baucke as the electrodes and thus casting layers 12 and 13 inherently in the role of a support with an electronically-insulating protein-conducting coating.

Although the decision asserts that appellant has misapprehended the Examiner's rejection, appellant believes this is, in fact, his first opportunity to respond to the clearly articulated reasoning of the Board decision. Appellant was not informed of the nature of this rejection by the Examiner. Appellant did not understand that the Examiner might have considered that layers 11 and 14 correspond to electrodes while layers 12 and 13 form appellant's claimed coated membrane because the Examiner did not say so. The Examiner's position was as is stated on page 6 of the Answer that "thus, the membrane electrode assembly is constituted by an electrolyte material being supported by the electrode" concluding that "it is reasonable to argue that the membrane electrode assembly as a whole represents a membrane *per se*."

This appears to be a different argument from that now clearly presented in the decision, and the limitation to a single support was responsive to that argument.

Although the Board considered the above mentioned claims to be obvious as well as anticipated by Baucke, it appears that the conclusion of obviousness is based entirely on the asserted inherent anticipation of the claims by this document. There does not appear to be any reasoning in the decision that would support a finding of obviousness absent what appears to the Board to be an inherent anticipation.

Perhaps if, indeed, the palladium coating in Baucke could be functional as an electrode, then the fact that Baucke characterized layer 13 as the electrode might be irrelevant. However, the disclosed thinness of the palladium layer 14 makes this interpretation impossible and the layer 13 cannot be interpreted as appellant's supporting member and must be interpreted as part of an electrode. If that is the case, then Baucke's Figure 2 can only be what Baucke says it is, two electrodes sandwiching an electrolyte without any independent supporting foil for the electrolyte.

For this reason, the anticipation considered inherent in Baucke is not in fact inherent as was the case where inherency was found as in *Atlas Powder Co. v. IRECO*, cited by the Board on page 16. Baucke cannot by its own teaching of required electrode thickness describe two electrodes bracketing the claimed coated support.

Finally, on a policy note, in an article published several years ago in the *William and Mary Law Review* (2005) 47:371-411, Burk and Lemley argue that the standard for inherent anticipation, as based on the history of decisions by the Federal Circuit, rests on whether the public has already benefited from the invention (as opposed to whether the person of ordinary skill in the art would or would not have been made aware of the inherent property).

To make their case that it is public benefit that is the appropriate criterion, Burk and Lemley cite *Edison Electric Light Co. v. Novelty Incandescent Lamp Co.*, 167 F. 977 (3d Cir. 1909) where

Edison patented an improved light bulb with a changed placement of wires. There was evidence that such a changed placement occurred during manufacturing of prior art light bulbs, but that this was regarded as a manufacturing defect. No inherency was found because this configuration was treated as a problem and never sold to the public. The Court stated that the prior art use "gave nothing to the world."

It cannot be said that the disclosure of Baucke has made the invention of applicant available or useful to the public. Baucke Figure 2 itself does not describe the invention inherently because of the inability of such a thin palladium layer to serve as an electrode, and it clearly does not place appellant's invention in the possession of the public.

Because the decision rejecting claims 75-76, 80-81, 84-85 and 89-90 over Baucke overlooks the inability of the palladium layer 14 described by Baucke to serve as an electrode, appellant believes it should be reconsidered and reversed.

Respectfully submitted,

Dated: February 22, 2010 By: / Kate H. Murashige /

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What is the diameter of a palladium atom?

its density is 12.0 g/cm^3 at 27C, and it crystallizes in a face-centered cubic unit cell...

thanks!
2 years ago

angela

Best Answer - Chosen by Asker
palladium atomic number 46

http://www.webelements.com/webelements/e...

Atomic radius = 140 picometers
Atomic radius (calculated) 169 picometers
Covalent radius (empirical) = 131 picometers
Van der Waals radius = 163 picometers

http://en.wikipedia.org/wiki/Palladium
2 years ago

Asker's Rating: *****
thanks

lzt0d2

Other Answers (0)

No other answers.

EXHIBIT A